



TOBACCO CESSATION MEDICATION CHOICES

Presented by
CAPT Mary Kline, NC, USN
Family/Community Nurse Practitioner

March, 2007
46th Navy Occupational Health & Preventive Medicine
Conference
Tobacco Facilitator Training 101



Who should consider using medication to quit?

- Have tried several times without success
- Smokes 1 pack per day or more
- Bothered by cravings for nicotine



Nicotine Patch (also available by prescription)

Nicotrol, Prostep, Habitrol, Nicoderm

- The nicotine patch releases a constant amount of nicotine in the body. Unlike the nicotine in tobacco smoke which passes almost instantaneously into the blood through the lining of the lungs, the nicotine in the patch takes up to three hours to pass through the layers of skin and into the user's blood.
- The patches are similar to adhesive bandages and are available in different shapes and sizes. A larger patch delivers more nicotine through the skin. Apply the patch to a dry non-hairy area of skin on the upper arm, back, or chest (above the level of the heart). Be sure to remove old patch before applying new one. Rotate the site and do not go back to same site for 7 days. Don't use the patch if allergic to tape.



Nicotine Patch

- The patch must be worn all day, and cannot be put on and removed as a substitute for a cigarette. Most of the patch products are changed once every 24 hours. One particular patch is worn only during the waking hours and is removed during sleep.
- Wearing the nicotine patch lessens chances of suffering from several of the major smoking withdrawal symptoms such as tenseness, irritability, drowsiness, and lack of concentration.
- Average retail price for over-the-counter transdermal nicotine patches (starter box) is approximately \$4 a day.



Nicotine Patch

- Some side effects from wearing the patch may include:
 - ☐ skin irritation
 - ☐ dizziness
 - ☐ racing heartbeat
 - ☐ sleep problems
 - ☐ headache
 - ☐ nausea
 - ☐ vomiting, muscle aches and stiffness

Nicotine Gum - Nicorette , Nicotine polacrilex,

- Nicotine gum delivers nicotine to the brain more quickly than the patch however, unlike smoke, which passes almost instantaneously into the blood through the lining of the lung; the nicotine in the gum takes several minutes to reach the brain. This makes the "hit" less intense with the gum than with a cigarette.
- Nicotine gum contains nicotine bound to a polacrilex resin together with a buffering agent. Chewing releases nicotine, and different chewing techniques can affect the rate of release and absorption through the buccal mucosa.
- Nicotine gum is not designed to be chewed like normal gum. Rather it is used in the "chew and park" method. When you insert a piece of gum into your mouth, chew it a few times to break it down, then park it between your gum and cheek and leave it there. The nicotine from the gum will make its way into your system via the blood vessels just under the lining of the oral cavity. If you continue chewing without parking, the nicotine will be released directly into the saliva in your mouth, which will eventually be swallowed, leaving you with a nasty stomachache and a craving for a cigarette.



Nicotine Gum

- Nicotine gum contains enough nicotine to reduce the urge to smoke. The over-the-counter gum is available in 2mg doses (for smokers of 24 or fewer cigarettes each day) and 4mg doses (for smokers of 25 or more cigarettes each day). One piece of gum is one dose; maximum dosage should not exceed 24 pieces per day.
- Nicotine gum helps take the edge off cigarette cravings without providing the tars and poisonous gases found in cigarettes. It is a temporary aid that reduces symptoms of nicotine withdrawal after quitting smoking.
- The average retail price for nicotine gum is approximately \$4.50 (10 pieces) a day for average usage during the first six weeks of use.



Nicotine Gum

- Nicotine gum must be used properly in order to be effective. Steps for nicotine gum users include:
 - Stop all smoking when beginning the nicotine gum therapy.
 - Do not eat or drink for 15 minutes before using, or while chewing the gum (some beverages can reduce its effectiveness).
 - Chew the gum slowly on and off for 30 minutes to release most of the nicotine. Parking the gum between the cheek and gum allows the absorption of nicotine into the lining of the cheek.
 - Chew enough gum to reduce withdrawal symptoms (10-15 pieces a day but no more than 24 a day).
 - Use the gum every day for about a month or so, then start to reduce the number of pieces you chew a day, chewing only what you need to avoid withdrawal symptoms.
 - Discontinue use of gum after three months.
 - If the gum sticks to your dental work, stop using it and check with your medical healthcare professional or dentist. Dentures or other dental work may be damaged because nicotine gum is stickier and harder to chew than ordinary gum.



Nicotine Lozenge - Nicotine polacrilex lozenge, Commit lozenge

- In 2002, the first and only over the counter nicotine lozenge meant to help smokers kick the habit was introduced to the market.
- Nicotine lozenge comes in the form of a hard candy, and releases nicotine as it slowly dissolves in the mouth. Eventually, the quitter will use fewer and fewer lozenges during the 12-week program until he or she is completely nicotine-fare. Biting or chewing the lozenge will cause more nicotine to be swallowed quickly and result in indigestion and/or heartburn.
- Nicotine lozenge is available in 2mg or 4mg doses. One lozenge is one dose; maximum dosage should not exceed 20 lozenges per day.
- Each lozenge will last about 20-30 minutes and nicotine will continue to leach through the lining of the mouth for a short time after the lozenge has disappeared. Do not eat or drink 15 minutes before using the lozenge or while it is in your mouth.



Nicotine Lozenge

- Do not use nicotine lozenges for longer than 12 weeks. If you feel the need to continue using the lozenges after 12 weeks, contact your healthcare professional.
- The most common side effects of lozenge use are:
 - Soreness of the teeth and gums
 - Indigestion
 - Throat irritation
- The average retail price for nicotine lozenge is approximately \$6 a day for average usage (12 doses) and up to \$12 a day for maximum usage (20 doses) during the first six weeks of use.



Nicotine Nasal Spray - Nicotrol NS

By Prescription Only

- Nicotine nasal spray, dispensed from a pump bottle similar to over-the-counter decongestant sprays, relieves cravings for a cigarette.
- Nicotine is rapidly absorbed through the nasal membranes and reaches the bloodstream faster than any other NRT product, giving a rapid nicotine "hit". This feature makes it attractive to some highly dependent smokers.
- The most common side effects due to the nasal spray are nose and throat irritations.



Nicotine Nasal Spray

- A usual single dose is two sprays, one in each nostril. The maximum recommended dose is 5 doses per hour or 40 doses total per day.
- The average retail price for nicotine nasal spray is approximately \$5 a day for average use (13 doses) and up to \$15 a day for maximum usage (40 doses).
- Do not use the spray if asthma, nasal allergies, nasal polyps, or sinusitis.
- Dispose with child resistant cap in place.



Nicotine Inhaler

By Prescription Only

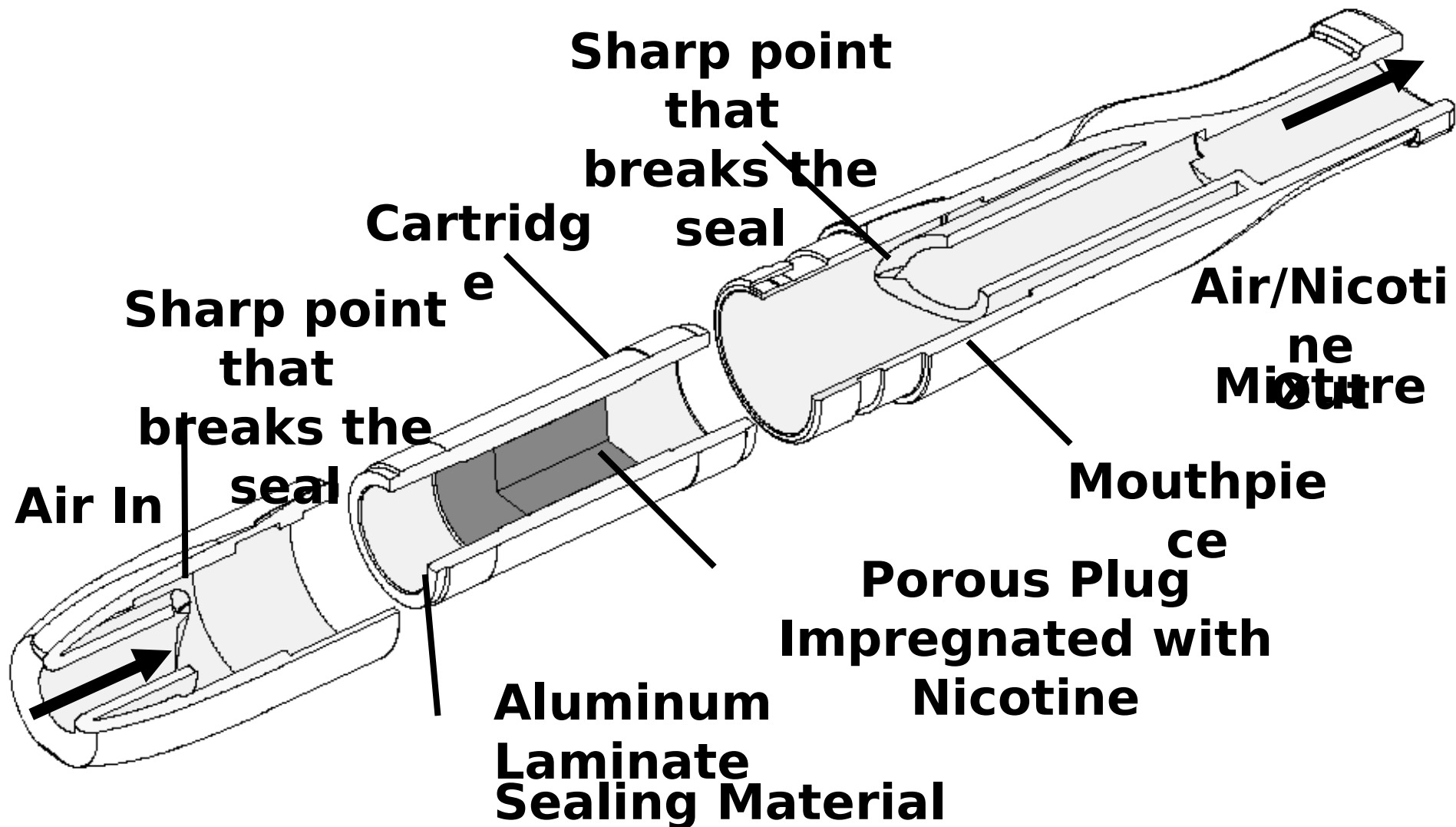
- The nicotine inhaler consists of a plastic cylinder containing a cartridge that delivers nicotine when you puff on it. Use the inhaler when you have a craving for a cigarette. Use no more than 16 cartridges a day for up to 12 weeks.
- Although similar in appearance to a cigarette, the inhaler delivers nicotine into the mouth, not the lung, and enters the body much more slowly than the nicotine in cigarettes. The nicotine inhaler is available only by prescription.
- Each cartridge delivers up to 400 puffs of nicotine vapor. It takes at least 80 puffs to obtain the equivalent amount of nicotine delivered by one cigarette.



Nicotine Inhaler

- The initial dosage is individualized. The best effect is achieved by frequent, continuous puffing for 20 minutes. One cartridge will last for 20 minutes of continuous puffing and deliver 4 mg of nicotine; only 2 mg are actually absorbed. This is the equivalent of about 2 cigarettes. The maximum suggested dose is 16 cartridges per day.
- Side effects include irritation of the throat and mouth in the beginning. You may also start to cough but you should get over this after a while, if not make sure to consult with your doctor.
- The average retail cost of the nicotine inhaler is approximately \$45.00 for a package (42 cartridges).

Schematic of the Nicotine Inhaler



Comparison of Nicotine Replacement Products

NRT Form	Availability	Flexible Dosing	Min/Max Dose	Time To Onset	Oral Delivery	Primary Side Effects	Generic Form Available
Nicotine Patch	Over-the-Counter	No	1 daily	1-3 hours	No	Topical skin rash	Yes
Nicotine Gum	Over-the-Counter	Yes	9-20 daily	7-10 mins	Yes	mouth/throat soreness	No
Nicotine Lozenge	Over-the-Counter	Yes	9-20 daily	7-10 mins	Yes	hiccups; heartburn	No
Nicotine Inhaler	Prescription	Yes	6-16 daily	5 mins	Yes	cough; throat irritation	No
Nasal Spray	Prescription	Yes	13-20 daily	10-15 mins	No	nose/throat irritation ; runny nose	No

(Adapted from Schmitz J., Henningfield J, Jarvik M, "Pharmacologic Therapies for Nicotine Dependence." In *Principles for Addiction Medicine*, 2



NRT

- Keep these drugs , including throw away patches and gum, out of reach of children and pets. Even a small amount of nicotine can harm a child or animal.
- Nicotine may harm a fetus or cause miscarriage. Nicotine passes into breast milk and may cause problems for nursing babies.



Non-Nicotine Pill - Zyban

- Greater than or equal to 18 years old
- Bupropion hydrochloride (Zyban) was approved in 1997 to help smokers quit. The drug, available by prescription only, is also sold as an antidepressant under the name Wellbutrin, Wellbutrin SR, Budeprion SR..
- Common side effects include insomnia, dry mouth and dizziness.
- Treatment with bupropion begins while the user is still smoking, one week prior to the quit date. Treatment is then continued for 7 to 12 weeks. Length of treatment is individualized.



Non-Nicotine Pill - Zyban

- Dosing should begin at 150 mg/day given every day for the first 3 days, followed by a dose increase for most people to the recommended dose of 300 mg/day, starting on the 4 day of treatment. The maximum recommended dose is 300 mg/day, given as 150 mg twice daily. An interval of at least 8 hours between successive doses is advised. Avoid taking near bedtime to minimize sleep disruption.
- People who have not made significant progress towards abstinence by the seventh week of therapy are unlikely to successfully quit during this attempt, and bupropion treatment should be discontinued.
- The average wholesale price for bupropion is approximately \$2 per day.



Chantix - tablets

- Greater than or equal to 18 years old
- The newest prescription drug Chantix, Varenicline tartrate, is only the second nicotine-free smoking-cessation drug to gain FDA approval. The active ingredient varenicline works in two ways -- by cutting the pleasure of smoking and reducing the withdrawal symptoms that lead smokers to light up again and again.
- The tablet will be taken twice-daily for 12 weeks, a period that can be doubled in patients who successfully quit to increase the likelihood they remain smoke-free.
- The most common adverse side effects include: nausea, headache, vomiting, gas, insomnia, abnormal dreams, and a change in taste perception.



Varenicline (Chantix®)

Dosing:

- Treatment with varenicline should be initiated while the person is still smoking. Approximately one week is required to achieve steady blood levels.
- Dosing should begin at 0.5 mg, taken orally once daily, for the first 3 days.
- Dose is increased to 0.5 mg, twice daily, during days 4 - 7.
- Starting day 8 and continuing to the end of treatment, dosage is 1 mg twice daily.
- It is prepackaged in a 4 week starter pack that includes the initial 0.5 mg and subsequent 1 mg dosages; and in a 4 week continuation pack which has only the 1 mg tablets. Normal treatment is for 12 weeks with one starter pack and two continuation packs.



CHANTIX

- If side effects are troubling, the dose may be decreased to .5 mg, twice daily.
- Take after eating with a glass of water. An interval of at least 6 hours between successive doses is advised.
- The quit attempt should occur on or about the eighth day of treatment.
- If lapses occur, continue current dose as well as efforts to quit smoking.



CHANTIX

How does CHANTIX work? First, you have to know how nicotine works.

- There are receptors for nicotine in the brain. When smoke is inhaled, nicotine attaches to these receptors. This sends a message to a different part of the brain to release a chemical called dopamine. Dopamine gives a feeling of pleasure. But it only lasts for a short time. The body wants to repeat this feeling. Based on research, it is believed that CHANTIX™ (varenicline) works by activating these receptors and blocking nicotine from attaching to them. However, CHANTIX does not contain nicotine.

CHANTIX

Recommended Dosing

Day 1 to day 3

White tablet (0.5 mg),
1 tablet each day



Day 4 to day 7

White tablet (0.5 mg)
Twice a day
1 in the morning and 1 in the evening



Day 8 to end of treatment

Blue tablet (1 mg)
Twice a day
1 in the morning and 1 in the evening





CHANTIX

Some important things to remember:

- CHANTIX should be taken after eating.
- Drink a full glass (8 ounces) of water with your dose.
- If you miss a dose, take it as soon as you remember. If it's close to the time of your next dose, wait. Then just take your next regular dose.
- Tell your doctor about all other medications you are taking before taking CHANTIX. Especially tell your doctor if you take insulin, asthma medications, or blood thinners. When you stop smoking, there may be a change in how these and other medicines work for you.



Partner with medical provider

- Seeing a medical provider regularly while using smoking cessation drugs is important to assure that the medication is working and watch for unwanted side effects.



Drug Interactions

- Drugs that may be affected when a person stops smoking:
 - Insulin
 - Airway opening drugs (bronchodilators)
 - Opioid (narcotic) pain relievers
 - Beta blocker (propranolol, Inderal)
 - Blood thinners



Non-medicinal alternatives

- Hypnosis
- Acupuncture
- Behavioral therapy
- Nicotine vaccination- NicVAX under research & development, works by triggering the body's immune system to block nicotine from reaching the brain; expected to work for one year following injection
- Low level laser or cold laser therapy- not shown to be effective

Pharmacotherapy Agents

Name	Dosing Regimen	Contradictions	Adverse Drug Reactions
Nicotine Patch	Heavy Dependency- a pack daily or more 21 mg for 2 weeks, 14 mg for 2 weeks, 7 mg for 2 weeks Mild Dependency- 1/2 pack a day 14 mg for 2 weeks, 7 mg for 2 weeks	Allergy Pregnancy Unstable angina	Sleep disturbances Skin irritation Headache
Zyban	150 mg qd for 3 days, 150 mg bid for 7-12 weeks	Seizure disorders Predisposition to seizure disorders by disease or contaminant drugs MAOIs Allergy	Sleep disturbances Dry mouth Headache

Name	Dosing Regimen	Contradictions	Adverse Drug Reactions
Nicotine Gum	Fewer than 25 cigarettes/day: 2 mg strength More than 24/day: 4 mg strength 1 piece q 1-2 hr for 6 weeks, 1 piece q2-4 hr for 3 weeks, 1 piece q 4-8 hr for 3 weeks	Allergy Pregnancy	Nausea, dyspepsia, jaw fatigue, risk of dependency
Clonidine-limited efficacy	150-400 mg mcg/day orally, or 200 mcg/24 hr patch	Allergy Coronary insufficiency, recent MI Pregnancy	Dry mouth, drowsiness, sleep disturbances, dizziness
Nortriptyline - not FDA approved for tobacco cess.	25 mg qd for 1 week before quit, titrate to 75 mg qd or maximum tolerated for 8	Allergy MAOIs Recent MI	Dry mouth, drowsiness, hypotension

Name	Dosing Regimen	Contradictions	Adverse Drug Reactions
Buspar-anxiolytic (possible short-term benefit)	Initially 7.5mgm twice daily. Usual range 20-30mgm/day; max. 60mgm/day	Concomitant MAOI's	Dizziness, GI upset, headache, nervousness, CNS or emotional effects, nonspecific chest pain, tinnitus, dream disturbances
Topiramate	Not recommended due to lack of documented effects	Many	Many
Opiate antagonists	Not effective in improving quit rates		
Amphetamines	Without benefit and may increase smoking		
Cytisine	Nicotinic receptor agonist available in Eastern Europe for smoking cessation		
Under investigation:	Rimonabant for smoking and obesity	Selegiline, Bromocriptine	Lobeline, mecamylamine (no proven role in tobacco cessation)



How to Choose Pharmacotherapy

Zyban: Highly addicted/High user- over a pack a day

- long smoking history
- tried other methods of quitting
- increased cravings
- irritability with quitting
- concerned about weight gain
- adhesive allergies



How to Choose Pharmacotherapy

Nicotine Replacement Patch:

- No experience with cessation attempts
- Short smoking history
- Already on anti-depressant medicine
- Patient declining Zyban (fear of medication)
- Less than 18 years old



How to Choose Pharmacotherapy

Combination of Patch & Zyban:

- Increased cravings on patch
- Can add Zyban to patch or patch to Zyban
- Combination *may* increase abstinence rate to 35%
- **Published Abstinence rate**
 - Zyban alone-30%
 - Patch alone-16%



How to Choose Pharmacotherapy

Chantix

- Contraindications to nicotine replacement
- Failed nicotine replacement.
- Contraindications to using Zyban.
- Contraindications to using nicotine replacement and Zyban.

Side effects

- Patients should be informed that, even with nicotine replacement, bupropion, or varenicline, they may experience withdrawal symptoms, including anxiety, frustration, depression, and an often intense craving for cigarettes.
- Medication discontinuation rate may be up to 35%- 40% with all medications secondary to side effects

Side Effect Rate			
	Patch	Zyban	Combination
Headache	28%	26%	26.6%
Insomnia	30%	42%	47.5%



Contact Information

**CAPT MARY A. KLINE, NC, USN,
FAMILY/COMMUNITY NURSE PRACTITIONER
NBHC NATTC PENSACOLA, FLORIDA
760 EAST AVENUE
PENSACOLA, FL 32508-5140
850-452-8970 EXT126, FAX 850-452-
8978, CELL 757-373-5646
mary.a.kline@pcola.med.navy.mil
klineva@aol.com**